B. Boiler Modifications

Project Overview

Modifications to the boiler include both capacity provisions for achieving the 950 MWg target and performance enhancements for improved operational stability. The modifications are as follows:

- Platen Superheater Extension
- Overfire Air Addition (OFA)
- Drum Flow Distribution and Level Indication Stability Modifications
- Main Steam and Reheat Safety Relief Valve Additions and Re-rates

The platen extensions constitute an approximate 10% increase in the overall platen superheater surface area. This increase in surface area yields an increase in platen energy absorption of nearly 13%. Steam temperature targets have not changed with these modifications. Platen superheat is being added specifically to allow more flexibility and stability in maintaining steam outlet temperature without losing boiler performance. In redistributing the energy absorption within the boiler, the increase superheat surface will restore valuable attemperator spray flow margins to provide better control of steam temperatures at the new full load flows. No changes in operating procedures are anticipated in connection with the platen surface addition.

The OFA system is being provided to allow for greater operational flexibility while meeting or exceeding emissions criteria, under varying fuel and load conditions. Performance guarantees associated with LOIs, carbon monoxide and steam temperature will be verified during a boiler performance test in late April, 2003.

At the new design, VWO full load flow of 6.9 MMlb/hr the OEM (Babcock & Wilcox) had concerns regarding proper flow distribution within the drum. We also investigated ways of stabilizing drum level indication throughout the load range. As a result, a few small internal modifications will be made to drum internals.

Finally, in keeping with the new full load design flow rating of the boiler, the electromatic relief valve previously know as ERV #3 will now be replaced with a mechanical relief valve similar to the existing main steam safety relief valves #5 and #6. The new valve will be known as Main Steam Safety Relief Valve #4.